

What is Claimed is:

1. An intraluminal stent comprising:  
a plurality of circumferential hoops disposed in a helical succession along  
the axis of said stent, each of said hoops comprising a helical arrangement of elements  
5 defined by a successive series of substantially straight struts connected by apex  
sections alternately pointing in opposite axial directions, and  
at least one connecting member between a first hoop and an adjacent  
hoop adapted to prevent relative axial movement between the first hoop and the  
adjacent hoop, the connecting member comprising at least a portion of a first strut in  
10 one hoop connected to at least a portion of a second strut in an adjacent hoop, wherein  
the connecting member comprises one of:  
(a) a direct connection between a linear portion of the first strut that lies  
side by side with a linear portion of the second strut, or  
(b) a separate bridging member having a first portion welded to the first  
15 strut and a second portion welded to the second strut.
2. The stent of claim 1, wherein at least one apex section comprises  
two struts attached thereto and one strut is longer than the other strut.
3. The stent of claim 1, wherein at least one apex section comprises  
an included angle and the included angles are generally uniform except for selected  
20 apex sections having non-uniform included angles to enable said portion of said first  
strut to align with said portion of said second strut.
4. The stent of claim 1 further comprising a plurality of connecting  
members uniformly distributed along the stent according to a predetermined helical  
spacing.
- 25 5. The stent of claim 4, wherein the predetermined helical spacing is  
once approximately every 450 degrees.
6. The stent of claim 1, wherein each element comprises an axial  
length and the axial lengths of the plurality of elements are generally uniform except  
for selected elements comprising one or both ends of said stent.
- 30 7. The stent of claim 6, wherein said end elements define a plane  
perpendicular to the axis of said stent.

8. The stent of claim 1 further comprising an end hoop disposed at each end of said stent in which apex sections that point outwardly from said stent lie in a common plane perpendicular to the axis of said stent.

5 9. The stent of claim 8, wherein the elements of said end hoop progressively shorter axial length or amplitude leading to an end strut.

10. The stent of claim 8, wherein the struts between apex sections of said end hoop progressively further overlap struts of an adjacent hoop leading to an end strut.

10 11. The stent of claim 10, wherein the end hoops each comprise an end strut that is aligned adjacent to and connected to another strut of said end hoop.

12. The stent of claim 11, wherein said end strut is connected to said another strut with a weld having a first weld length and said connecting members in said hoops that are not end hoops comprise a weld having a second weld length that is less than said first weld length.

15 13. The stent of claim 12, wherein the end strut terminates short of said common plane perpendicular to the axis of the stent on which lie said end hoop apex sections that point outwardly from said stent.

20 14. An intraluminal stent comprising a helical arrangement of elements defined by a successive series of substantially straight struts connected by apex sections alternately pointing in opposite axial directions, wherein at least one apex section comprises two struts attached thereto with one strut longer than the other strut.

25 15. The stent of claim 14, wherein the stent further comprises a plurality of circumferential hoops disposed in a helical succession along an axis of the stent and at least one connecting member between a first hoop and an adjacent hoop adapted to prevent relative axial movement between the first hoop and the adjacent hoop, the connecting member comprising at least a portion of a first strut in one hoop connected to at least a portion of a second strut in an adjacent hoop.

30 16. The stent of claim 15, wherein said connecting members comprise said longer struts.

17. The stent of claim 15, further comprising at least one connecting member between the adjacent hoop and a second hoop angled relative to the tubular axis of the stent in an opposite orientation than at least one connecting member between the first hoop and the adjacent hoop to prevent rotational movement in which

the connecting members between successive pairs of adjacent hoops are oriented in the same direction.

18. The stent of claim 15, wherein an elongated strut of a first hoop lies adjacent to an elongated hoop of an adjacent hoop for at least some axial distance to permit connection therebetween.

19. The stent of claim 15, wherein the connecting member comprises a direct connection between a linear portion of the first strut that lies side by side with a linear portion of the second strut.

20. The stent of claim 15, wherein the connecting member comprises a separate bridging member having a first portion welded to the first strut and a second portion welded to the second strut.

21. The stent of claim 15, wherein at least one apex section comprises an included angle, the apex sections arranged in a pattern in which the included angles are generally uniform except for selected apex sections having non-uniform included angles to enable said portion of said first strut to align with said portion of said second strut.

22. The stent of claim 15 further comprising an end hoop disposed at each end of said stent in which apex sections that point outwardly from said stent lie in a common plane perpendicular to the axis of said stent.

23. The stent of claim 15 further comprising a plurality of connecting members uniformly distributed along the stent according to a predetermined helical spacing.

24. The stent of claim 23, wherein the predetermined helical spacing is once approximately every 450 degrees.

25. An intraluminal stent comprising a helical arrangement of elements defined by a successive series of substantially straight struts connected by apex sections alternately pointing in opposite axial directions, at least one apex section comprising an included angle, the apex sections arranged in a pattern in which the included angles are generally uniform except for selected apex sections having non-uniform included angles.

26. The stent of claim 25, wherein the elements form a plurality of circumferential hoops disposed in a helical succession along an axis of the stent and wherein the non-uniform included angles enable a portion of a first strut in a first hoop to align with a portion of a second strut in an adjacent hoop.

27. The stent of claim 25, wherein the non-uniform included angles are uniformly distributed along the stent according to a predetermined helical spacing.

28. The stent of claim 27, wherein the predetermined helical spacing is once approximately every 450 degrees.